Span of Control and Initiative:
Is More, Less?

A Monograph
by

Major Andrew S. Sandoy

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School of Advanced Military Studies
United States Army Command and General Staff College
Fort Leavenworth, Kansas

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MAJ ANDREW S. SANDOY, USA

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SCHOOL OF ADVANCED MILITARY STUDIES
ATTN: ATZL-SWV
FORT LEAVENWORTH, KANSAS 66027-6900
COM (913) 684-3437 AUTOVON 552-3437

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Modern weapons' lethality makes battlefield control difficult, decentralizes, and requires combined arms at all levels. Under these conditions narrow spans of control, three to four units are usually appropriate. Three subordinates support initiative in mobile battle, while four subordinates support initiative in more positional battles of attrition. The Army with three maneuver units at most echelons is designed to fight the mobile battles our doctrine demands. The rifle squad, however, probably needs a third fire team and the Army should consider three versus four companies in armor/ mechanized battalions. These changes will support leader initiative by providing leaders the control and flexibility to rapidly turn flanks, the opportunity in mobile battles.

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Major Andrew S. Sandoy
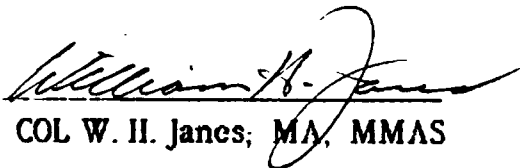
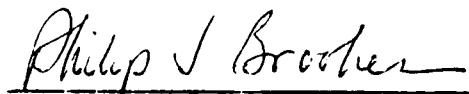Title of Monograph: Span of Control and Initiative: Is More, Less?

Approved By:

_____ Monograph Director
Lt Col John Higgins, MA

_____ Director, School of
COL W. II. Janes; MA, MMAS   Advanced Military
                             Studies

_____ Director, Graduate
Philip J. Brookes, Ph. D.   Degree Program

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Abstract

SPAN OF CONTROL AND INITIATIVE: IS MORE, LESS? by MAJ
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Research Problem. The Army does not use leader initiative as a
criteria to design units. Yet, Army doctrine requires that leaders
display initiative on the decentralized battlefield. The Army may
therefore not be able to fight on the decentralized battlefield. This
monograph seeks the answer to the question: do the Army's current
tactical spans of control facilitate the leader initiative required to fight
on the empty, decentralized battlefield?

Research Method. The monograph describes the nature of
battle, establishes the need for leader initiative, and explains the
basis for military span of control. Theory provides a framework to
understand decentralized battle and the impacts of varying spans of
control. History and current trends then confirm or deny the theories.
Analysis then compares and contrasts various spans of control in
several military organizations relative to the established criteria:
initiative, decentralization, and control.

Conclusions. Modern weapons' lethality makes battlefield
control difficult, decentralizes initiative, and requires combined arms
at all levels. Under these conditions narrow spans of control, three to
four units are usually appropriate. Three subordinates support
initiative in mobile battle, while four subordinates support initiative
in more positional battles of attrition. The Army with three maneuver
units at most echelons is designed to fight the mobile battles our
doctrine demands. The rifle squad, however, probably needs a third
fire team and the Army should consider three versus four companies
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initiative by providing leaders the control and flexibility to rapidly
turn flanks, the opportunity in mobile battles.

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PART I: INTRODUCTION

J.F.C. Fuller suggests that armies tend to follow the trends of their societies.[1] As one of the speakers at the United States Army Command and General Staff College in 1989 noted, civilian businesses and industry are eliminating much of middle management to get lean and mean. He also noted that this was a trend that would affect the military.[2]

Companies are developing flatter organizational structures with fewer managers supervising more subordinates. In effect, civilian spans of control are increasing. Business experts claim many advantages for these flat hierarchies: less overhead with fewer managers, faster communications, quicker response time to the fluid marketplace, and the development of increased responsibility and initiative in the remaining middle managers. The growth of the information age with computers everywhere may make this possible and even desirable in industry.[3] The French, Italian, and Hungarian Armies have already widened their spans of control.[4] Is this trend possible or even desirable in U. S. Army combat units? This logic leads to the research question: How does tactical span of control affect leader initiative?

Whereas the military has many echelons of command, this monograph will deal only with the tactical level: ground maneuver units of division size or smaller. For this tactical case, span of control is the number of ground maneuver units reporting to a higher headquarters. Leader initiative in these tactical maneuver units is the

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ability to exploit opportunity with minimal direct outside control. Why is this research question significant?

If span of control is overexpanded, the U.S. Army may not be able to fight effectively on the battlefield. Army doctrine demands leader initiative on the modern decentralized battlefield, yet the Army does not consider leader initiative as a criteria in unit design.[5] So, the Army may not have the leader initiative necessary to win on the modern decentralized battlefield. What criteria can we use to analyze this significant question?

The criteria used to answer this question are elements of decentralized battle as stated in Field Manual 100-5, Operations : initiative, decentralization, and control. Research must answer whether it is easier or harder for leaders to exploit opportunity (exercise initiative) as the span of control changes.[6] The facts must also clarify the amount of decentralization (minimal direct supervision) involved as the span of control changes.[7] Finally, how does leader control of subordinates change with varying spans of control? If leader control and subordinate initiative are required for decentralized battle, how do various spans of control affect leader initiative and control during decentralized battle?

This study will apply the previously mentioned criteria to military theory, doctrine, and history, along with management texts/articles to find answers to our question. Sun Tzu, Carl von Clausewitz, Martin van Creveld, and Lord Moran, along with current American and German doctrine will describe the nature of battle, establish the need for initiative, and explain the basis for military spans of control.

Military history will show the change in both the nature of battle

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and the structure of military organizations over time. The armies and battles of the Great Captains will show successful armies fighting in the days before the decentralized battles of the Industrial Revolution. The German Army will show the development of decentralized control and initiative after the Industrial Revolution. Finally, the change in modern army organizations will parallel the changes in the nature of battle. Management texts and articles will provide the civilian span of control theory and business experience with wide spans of control.

The study of these sources follows four steps: theory, history, analysis, and then conclusions/ implications. First, theory provides a framework to understand decentralized battle and the impacts of varying spans of control. Second, history and current trends confirm or deny the theories, so that only the relevant theories are left for analysis. Third, analysis compares and contrasts various spans of control in several military organizations relative to the established criteria: initiative, decentralization, and control. Finally, the results of this analysis will provide conclusions about the Army's current spans of control along with implications for future changes.

PART II: THEORY

Theory provides a framework to look at a situation in an organized manner. To understand the relationship between tactical span of control and leader initiative, we must first look at the modern decentralized battlefield. Once we understand the battlefield and why leader initiative is important, we can look at the various theories on span of control to see how they apply to this lethal and decentralized

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battlefield.

Theory of Modern Battle

To address the criteria theory must answer several questions: why initiative is important, what is the impact of modern battle on leader's ability to control subordinates, and how leaders have delegated authority and decentralized execution? Initiative, that is, energy or aptitude displayed in starting action, rapidly exploits temporary battlefield opportunities. The German Army addresses the need for initiative as follows:

> The commander must ... be resourceful and must not lack in ideas for makeshift solutions and improvisations. He must be able to wait and yet act at the right moment. ... Resolute action is the first requirement in war. Commanders who merely wait for orders cannot exploit the opportunity of the moment. ... initiative within given limits is the foundation for success. ... (do not however) act arbitrarily without consideration of the whole .... [8]

Exploiting opportunity has been the essence of war since Sun Tzu's time. He preferred to create opportunity during planning and then to decisively exploit this opportunity on the battlefield. Alternately, opportunistic attack followed an impenetrable defense. In either case the attack would have energy of a drawn bow and strike like a hawk.[9] Clausewitz echoed Sun Tzu over 2000 years later. Defense, his basis for war, prepared for the decisive attack, "the blinding sword of vengence"[10], when opportunity presented itself. American, German, and Russian doctrine emphasize initiative exploiting opportunity to this day.[11]

Opposing wills, the fog of war, friction, and chance create temporary opportunities. Each side attempts to set the terms of the battle and gain an advantage. Poor intelligence caused by the fog of

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war leads to bad decisions. Faulty execution by one or both sides exposes flanks and creates weaknesses. Random bad luck, Murphy's Law in action, does the same. Since neither side willingly creates a real weakness, these opportunities created by opposing wills, friction, the fog of war, and chance will be temporary.[12]

Quick and decisive action exploits these fleeting opportunities. The fastest way to exploit opportunity is for the leader on the spot to be prepared to take advantage of the situation. If the plan does not cover the situation, the fastest way to exploit opportunity is for the same leader to act- quickly and decisively, within the commander's intent. If initiative is so vital, why do leaders not fully control their subordinates and impose their will on the enemy?

The lethality of modern weapons limits battlefield control. Weapons' lethality disperses and isolates units, which makes control, communications, coordination, motivation, and employment difficult. Dispersion along with constant stress and attrition reduces cohesion and competence. With control more difficult it is harder for leaders to exploit opportunity or exercise initiative.

Increasing battlefield lethality led units to disperse in order to survive. One of Caeser's 6600 man legions fought in the area of ten football fields. Today, two thousand years later, a ten man squad or a tank occupies the area of a Roman Legion. Dispersed and isolated units are clearly harder to control than concentrated units.[13]

Weapons' lethality also isolates units from each other and their leaders. "If it can be seen, it can be hit; if it can be hit, it can be killed".[14] Therefore, soldiers, tanks, and helicopters hug the folds of the earth to hide from enemy observation and fire. This use of terrain

to hide from the enemy, also hides units from each other. Leaders can neither see the entire battlefield, nor communicate directly with their subordinates, nor observe the results of their orders.[15]

Leaders who can not see the battlefield rely on intelligence. Unfortunately, "many intelligence reports in war are contradictory; even more are false, and most are uncertain."[16] Not only must information be screened for accuracy and to counter enemy deception, electronic warfare complicates communications.

Electronic warfare makes communications with dispersed and isolated units even more difficult. Enemy radio electronic combat jams and destroys receivers and feeds false information to the listener. Electronic warfare makes communications and coordination with dispersed and isolated units difficult, yet battle is combined arms and must be coordinated to exploit opportunities that arise.[17]

While each man, team and crew hide in the folds of the earth, none of them can survive alone. A soldier, team, or crew alone can be outflanked. A soldier, machinegun team, and tank together secure each other from other tanks or infantry. Leaders have difficulty coordinating these isolated combined arms units to exploit opportunity.[18]

Isolation, dispersion, constant stress, and increased weapons' lethality reduce the will to follow orders in the face of death. Dispersion limits the direct supervision of the unit leaders as the primary means to overcome fear. Dispersion also separates soldiers from the reassuring closeness of the mass. This isolation and the constant stress imposed by highly lethal weapons, eats away at the reserves of courage. Leaders still retain a sporadic ability to force

subordinates to act, but exploiting opportunity is harder still.[19]

Willing subordinates must be trained and competent before they can execute an order. Constant stress and attrition physically and morally reduce subordinate training levels and competence. Lord Moran in The Anatomy of Courage lamented that the best men and leaders are the first casualties. Additionally, as battles become longer and longer, stress casualti~3 increase and men begin to think and act less clearly. Also, attrition disrupts cohesion so that new men and leaders are not fully trained or integrated into the unit. Stress, turbulence, and attrition have complicated the leaders' ability to control subordinates and exploit opportunity.[20]

Weapons' lethality reduces leader's ability to exercise initiative. Leaders must see, decide, and act to exploit temporary opportunity. Battlefield stress, dispersion, and isolation make it hard for leaders to see and decide. Subordinate fear and turbulence along with the difficulty of coordinating and communicating with the dispersed combined arms units make it difficult to act. Weapons' lethality limits control and decentralizes the battlefield.

Decentralization involves mission orders, low level combined arms coordination, and emphasis on leader initiative. Commander's intent or mission orders maintain control during decentralized battle, because as the Elder Moltke said, no plan survives contact with the enemy.[21] The leader attempts to complete his task with all vigor. If the situation makes the task untenable and contact with higher headquarters is lost, the leader changes his task to stay in line with the general intent. Initiative within commander's intent is equally important for combined arms.[22]

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To maximize the effects of available weapons, combined arms have been pushed down to the lowest levels. Units are dispersed and isolated to survive, yet they must coordinate with their neighbors to generate the firepower to defeat the enemy. Units often lose contact with their higher headquarters during battle. They either stop, fight on alone, or coordinate their actions. If the intent is clear, they exercise initiative and coordinate with their neighbors. So, decentralized battle requires decentralized initiative.[23] Let us review the theory of modern battle.

Weapons' lethality decentralizes battlefield initiative by limiting the leaders' means of control. Modern weapons disperse and isolate units on the battlefield. This hampers supervision, makes communications more difficult, increases stress/turbulence, and complicates combined arms coordination, which further limits leaders' direct control. We emphasize commander's intent, mission orders, low level combined arms coordination, and decentralized initiative to offset this limited control. Decentralized initiative allows the leaders on the spot to rapidly exploit temporary opportunities, usually open flanks or weaknesses in the line. How does this theory of decentralized battle relate to the theories on span of control?

Span of Control Theory

Numerous disciplines have theories which relate to span of control. These disciplines are Army doctrine, military theory, management science, psychology, sociology, and mathematics. We will compare each of these theories with the theory of modern battle we just finished. In some cases theory will specifically identify a range for span of control given the nature of modern battle. In that case we will

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have a specific range for span of control theoretically appropriate for modern battle. In other cases the theory will only provide general relationships between narrow and wide spans of control. For example, narrower spans of control may be more appropriate for decentralized battle, while wider or broader spans of control may be more appropriate for centralized battle. This comparison will help us to pick a more precise span within a given range. First, we'll look at Army doctrine.

The Army has no specific doctrine for span of control, only general guidelines. The Army averages five subordinates for units in general. Combat units have a much narrower span of control. The general goal is three subordinate maneuver units for a tactical headquarters. Organizational documents allow each headquarters to control from two to five subordinate maneuver units, but three is the norm. Given these general guidelines what do the military theoreticians say?[24]

Two military theorists, Clausewitz and Martin van Creveld, address tactical spans of control under varying circumstances. Clausewitz, the premier theorist on war, provides the most encompassing analysis of span of control in On War.

Clausewitz posited that span of control was a function of the situation. The ideal was for the general to directly control eight subordinates: two flank security, one forward security, three front line, and two reserves. This wide span provided rapid response to the general's orders, since there were few intervening headquarters between the general and the soldiers who executed them. With each additional headquarters orders lost "speed, vigor, and precision".[25] This wide span also increased the general's power, since subordinate's

power increases proportionally to their number.[26]

Clausewitz had specific comments on the effectiveness of varying spans of control. These primarily addressed high command. A span of control of two paralyzed the command, its chain of command was too long. Three or four subordinates were easy to personally issue orders to and control. At division or below, where communications means were limited, he saw four or five subordinates as the upper limit.[27]

While Clausewitz preferred wide spans of control for maximum responsiveness (centralization) to the general, the actual span depended on the situation. Combined arms under one headquarters supported narrower spans of control. Open terrain allowed for wide spans of control, while closed terrain, such as forests and mountains, which dispersed and isolated units, required narrower spans. Tactical echelons, difficult control, combined arms units, tenuous communications, and closed terrain favored spans of control between three and six maneuver units.[28]

It is interesting to note that open terrain was where Clausewitz felt that the general had the greatest impact on battle, while closed terrain was where the soldiers had the greatest impact. In other words wide spans of control allowed the general to exploit opportunity, while circumstances which made control difficult needed narrow spans and decentralized initiative.[29]

Martin van Creveld, renowned for numerous books on military leadership, command, and control, compares narrow and wide spans of control in Command in War. Van Creveld prefers narrower spans and decentralized battle, but accepts that wider spans and centralized control have their place. A narrower span with fewer subordinates is

easier to maintain control. This is critical given the tenuous controls in decentralized battle. Van Creveld also holds that decentralized battle with its narrow spans of control must have leader initiative at all levels.[30]

He does not discredit centralized command or wide spans of control. Given a genius in charge, highly competent subordinates, or an army highly trained to execute battle drills, centralized command executes orders quite rapidly. So long as the general sees the opportunity, decides quickly, and the army implements the decision, centralized command with wide spans has merits. In other words, if control is easy, wide spans of control work.[31]

Van Creveld also posits that wide spans of control are appropriate in counterinsurgency war. This avoids the problem of total oversupervision, which occurred in Vietnam. With few units in contact at any given time, the entire chain of command would hover in helicopters above the single company in contact. So, if control is easy, spans of control should be wide.[32] Van Creveld prefers narrow spans of control when control is difficult, such as modern decentralized battle with its need for subordinate initiative.

Military theory indicates that decentralized battle with its difficult control favors narrow spans of control, while centralized battle with its easier control favors wide spans of control. Decentralized battle, combat units, limited control, poor communications, combined arms, tactical echelons, and close terrain favor narrow spans of control. Centralized control, genius in command, ease of control/communications, operational units, single arms units, open terrain, counterinsurgency war, trained

subordinates, and highly drilled units favor wider spans of control. The range of acceptable spans of control for tactical units is three to six. Military theorists also linked narrow spans of control with decentralized battle and subordinate initiative. If the military theorists suggest these factors, what do the management theorists propose?

Management theory, much like military theory, holds that span of control is situational. In general the harder the situation is to control, the narrower the viable spans of control. The easier the situation is to control, the wider the viable spans of control. Four situational factors affect control: dispersion, communications, competence, and interdependence.[33]

Concentrated organizations favor wide spans, while dispersed organizations favor narrow spans. Dispersion makes control more difficult, since direct supervision is no longer possible. Dispersion therefore favors narrow spans, if direct supervision is required.[34] Since the battlefield is dispersed and needs control, management theory favors narrow spans of control for decentralized battle.

Clear, rapid, and accurate communications along with information technology favor wide spans, while tenuous communications favor narrow spans. Good communications allow leaders with wide spans to quickly transmit information from the top of the organization to the bottom and back again. Wide spans have fewer echelons and promote rapid and accurate communications. This follows the fundamental law of communications: each relay halves the information passed and doubles the noise.[35] If the leader has timely access to critical information via reports or direct access via computer, he can control

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more subordinates.[36]

If on the other hand, there are a large number of messages and their accuracy is not certain, someone needs to screen them. Narrow spans allow leaders with tenuous communications to take the time to screen information for accuracy and quickly communicate to immediate subordinates.[37] The theory of battle showed that communications were tenuous in the face of electronic warfare and that intelligence reports needed to be screened. Weak communications require narrow spans of control, what about leadership quality?

Good and stable leaders or subordinates favor wide spans, because they need less control or supervision. Conversely, limited leader or follower competence or high turbulence, needs more supervision, favoring narrow spans.[38] Battlefield attrition and turnover make it less likely that leaders or followers will be highly competent. Battlefield attrition favors narrow spans, what about the degree of coordination required?

Independent organizations favor wide spans, while interdependent organizations favor narrow spans. Subordinate units which are relatively independent do not need to spend a lot of time and energy coordinating with each other. Interdependent organizations must spend time coordinating and the wider the span, the more complex the coordination. Six subordinates is the limiting factor in highly interdependent organizations.[39] Modern battle is combined arms and interdependent. Battle again favors narrow spans. If difficult battlefield control favors narrow spans, how are centralization and initiative related to spans of control?

Organizations centralize when control is easy. Stable

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environments, good communications, clear situations, and good training favor control and centralization. Centralization allows top decision makers to exercise initiative. If reports are accurate and timely, they can rapidly change the organization to meet the new environment.[40] Wide spans of control and centralization fit when control is easy, just what Clausewitz and van Creveld said.

Alternatively, situations which make control difficult favor decentralized operations. Extremely wide spans of control make control more difficult, which may decentralize control.[41] This was van Creveld's point with counterinsurgency war. Constantly changing local conditions, dispersion, and local coordination, such as in multinational corporations, favor both decentralization and narrow spans of control, because control is difficult.

Decentralization supports local initiative by placing the authority to make changes into the hands of the local decision maker. If supervisors decentralize, they allow subordinates to learn by doing. This develops subordinate initiative, since the subordinate is more responsible to exploit opportunity. Narrow spans of control also allow the leader on the spot to make quick and effective decisions. So, difficult control favors decentralization , narrow spans of control, and local initiative.[42]

Management theory favors narrow spans of control for leader initiative in decentralized battle. Battlefield control is difficult, because units are dispersed and they must coordinate the combined arms, while leader turbulence is high and communications are tenuous. Narrow spans of control and decentralization address difficult control, while decentralization fosters leader initiative. Psychology also

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addresses span of control.

Psychology holds that the average mind can handle seven familiar ideas concurrently. This limit is further affected by capacity, familiarity, training, and stress.[43] Few leaders are geniuses or intimately familiar with battle. Many leaders will not be fully trained due to battlefield attrition and most leaders face severe stress in battle. Given these limitations, psychology indicates that controlling even seven maneuver units in battle would be difficult. So five or six are the upper limits of control in chaotic and decentralized battle. Given this limit from psychology what does sociology suggest?

Primary group theory holds that four to five man groups have the greatest cohesion and make the best decisions. Groups of three or less tend to be very cohesive, but make bad decisions, because emotion overcomes reason. Groups of six or more make better decisions, but lack cohesion. They tend to fragment into subgroups.[44] Cohesion is critical to combat battlefield fear and some form of group decision making is vital on a decentralized battlefield. Sociology indicates that a group with a leader and three to four subordinates is best for cohesion and group decision making. What number of subordinates does mathematics suggest?

Graicunas's Relationship[45]

Subordinates	Relationships	Subordinates	Relationships
1	1	4	44
2	6	5	100
3	18	6	222

Graicunas, using mathematics, posited in 1937 that interacting groups become exponentially more complex with each new member. The

greatest marginal increases in complexity occur beyond five.[46] Decentralized combined arms battle is fought by interacting groups. Mathematics indicates that combined arms battle with more than five subordinates will be exceedingly complex.

Implications of Span of Control Theory: If the theory of modern battle is correct, then three to four maneuver units is appropriate for decentralized battle. Army guidelines have two to five maneuver units per headquarters. Military theorists recommend three to five maneuver units for decentralized operations, tenuous communications, tactical or combined arms units, and closed terrain. Management recommends no more than six units given dispersion, difficult communications, turbulence, highly integrated (combined arms) operations, decentralization, and local initiative. Psychology and mathematics suggest an upper limit of five units. Finally, sociology recommends three to four subordinates as the range which yields the best decisions and cohesion. If three to four maneuver units are recommended to support battle in theory, what is the historical nature of battle. How was it in ancient times and how has it evolved to the present day?

PART III: HISTORY

The Nature of Battle

Battle has changed from being centralized with the army general exercising initiative to being decentralized requiring initiative from all leaders. The changes in the German Army from 1800 to 1945 will show this evolution. Until 1850 the nature of battle supported

initiative by the army general. After 1870 the nature of battle supported initiative by the company commander. By 1917 sergeants needed initiative. Let us start by looking at the centralized battle before 1850.

The nature of battle allowed the army general to control the battle and exercise initiative from one central location. Battles fought by the Great Captains up to Napoleon show this centralized initiative. First, let us look at the nature of the battlefield, which centralized initiative.

The limited lethality of weapons up to Napoleonic times concentrated the battlefield and made formations linear. Bayonets, swords, and spears were thrusting weapons requiring close contact on line. Muskets and bows had limited ranges and needed mass and linear formations for effect. Cannon and ballistas had limited ranges and low rates of fire.[47]

The only way to mass these weapons' effects in battle was to concentrate the men and fight on line. A 100,000 man Army was massed on the frontage of a couple of miles. Literally, war was as crowded as the stands in a football stadium. The only way to move, fight, or keep such an army on line was in relatively open ground.[48]

A concentrated mass of men fighting in an open plain was easy to control from a central location. In an open plain the general could see most of the battle and signal directly to his subordinates. Signals remained similar throughout this period: voice, flags, music, and runners. The Chinese used banners, colored flags, bells, and gongs. The Greeks used voice, flags, bugles, and flutes. The Romans used banners, standards, and various horns. Cavalry movies show these

same controls as late as the 1800s. This massing of men made direct and observed control from a central location easy. Infrequent, concentrated, and rapid battles also limited the modern impacts of combat exhaustion and attrition on cohesion and the will to fight.[49]

Massed formations and close supervision provided cohesion, moral support, reduced stress, and also prevented cowardice. The speed of the battle, a few hours at most, also meant that the average soldier avoided combat exhausion. The speed and infrequency of battle also avoided today's continual turbulence from attrition.[50] Limited weapons' lethality therefore allowed army generals to centralize control of the battle.

The indicators of this centralized control were the coordination of the various arms at army level along with the emphasis on mass drill and draconian discipline. The separate arms, infantry, cavalry, artillery, and engineers were controlled at high levels for massed effect. For example Alexander, the Romans, the Mongols, and Napoleon combined arms at the Army level.[51]

Mass drill showed central control of army formations. Anyone who has marched in a military parade or a band knows how centralized control is. Marching drill will only work if everyone instantly obeys commands. This degree of obedience imposes discipline, but is also mandatory for the formation to fight. If the formation breaks, it is vulnerable to slaughter by infantry or cavalry charge.

Given this devastating impact of disobedience, armies tended to use draconian discipline. The Romans for example immediately executed a guard found asleep.[52] This free use of capital punishment had not lessened until this century. Strict discipline, mass drills, and

centralized combined arms were indicators of the centralized battlefield control up to the age of Napoleon.

Centralized control meant that army generals exercised the initiative in their armies. They saw the opportunities, decided to act and then good communications along with mass drill allowed their armies to respond quickly. Starting with Alexander, let us see examples of how they exploited opportunity.

At Arbela, October 1, 331 B. C. Alexander saw a gap near the left-center of the Persian line and charged it. He smashed through and the Persians collapsed. At Pharsalus, August 9, 48 B.C. Pompey's cavalry was pushing Caeser's cavalry off the field of battle. Caeser personally led his reserve into the rear of Pompey's cavalry and then enveloped Pompey. Napoleon at Jena-Auerstadt, October 14, 1806 saw the Prussian collapse and unleashed Murat's cavalry.[53] In each case the General personally saw the weakness, decided to act, and exploited opportunity. The nature of pre-1870 battle made centralized control and initiative by the general possible. With the coming of the industrial revolution this centralized control became more difficult. As a result, army commanders decentralized battlefield initiative to the captains starting around 1870.

The smokeless, breechloading, magazine fed rifle increased lethality. The rifle increased the killing zone from 50 meters or less in the day of the musket to 1000 meters or more in 1870. Breech-loading rifles allowed the defender to reload while lying down. This protected the defender, while the attacker had to fully expose himself. Smokeless powder allowed the defender to remain hidden, while clouds of musket smoke no longer obscured fields of fire. The magazine

further increased the defender's rate of fire.

This increased lethality dispersed formations. Attackers could no longer march in mass to within a hundred yards of the enemy and then bring home the charge in a matter of seconds. Formations dispersed to avoid the fate of Picket's charge at Gettysburg and the devastating effects of enfilading rifle as occurred in the Crater at Petersburg. Dispersion was not enough, however, men had to hide.[54]

Companies hid in the folds of the earth, which isolated them from each other. One leader could no longer view and control the entire battlefield. During the wars of German unification in 1866 and 1870, battalion commanders and higher lost control of their formations.[55]

At Konigsgratz neither Moltke nor the army commanders could directly supervise the battle. They could not see what was happening and reports to them were hours or days old. The same was true of the orders that they issued. They did not even know they had won the battle until it was over. No general with a command system so lethargic could exploit opportunities as they occurred.[56]

These wars became known as captain's wars. The company had the first level commander who could immediately exploit opportunity. He could see, control, and maneuver his unit. German army doctrine was mobile war, so the company commander was prepared to maneuver. Since the battalion on up had limited control over the company, the situation allowed bold company commanders to maneuver and exploit opportunity. Dispersion and isolation supported initiative by all officers and also affected the moral domain of war.[57]

Dispersion and isolation increased fear. The invisible enemy increased the terror, while mass formations and direct supervision

were no longer moral supports against the terror of battle. These made action in the face of fear more difficult. One technological event did help control, however.[58]

The telegraph allowed the government to communicate rapidly to the commander in the field. This tied army headquarters to the telegraph lines, but it meant that the army was no longer separated from the government by the travel time of a courier. So, as tactical control decreased, strategic control began to increase. The German Army decentralized battlefield control from the generals to the officers.[59]

There were several indicators of this decentralized control. The Germans emphasized mission orders for all officers, the company became the critical command echelon and the division became a combined arms formation.[60]

The Hessians who returned from the American Revolutionary War brought back mission orders. In the broken and wooded terrain of the new world, the general could no longer directly control subordinate units. Up till 1870 this means of control was seen as a special technique for the Jaeger formations who fought in broken ground. After 1870 the Germans embraced intent and mission orders, while decentralized control became the ethos of the German officer corps.[61]

The Germans accepted the company as the unit of maneuver and cohesion, the crucial command echelon in the army. The company commander "became the single most important link in the entire chain of command."[62] Company cohesion and supervision became the pillars of strength versus fear. This emphasis on cohesion is echoed by DuPicq in his Battle Studies.[63]

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The battalion, brigade, and division became less important to soldiers. Combined arms, however, went to division where the artillery, cavalry, and engineer regiments were integrated with the infantry brigades. Loss of central control also decentralized initiative.[64]

One major lesson that the Germans took from the Wars of German Unification was to decentralize initiative throughout the oificer corps. Action was better than inaction and officers had a duty to disobey orders, which no longer fit the situation. The Germans went so far in training that each officer was forced to disobey orders. They were placed in situations where their mission no longer fit the reality of the battlefield. They could change their mission or wait for approval from higher headquarters. Immediate action was expected.[65]

While the Wars of German Unification decentralized initiative to the company commander, World War I did the same to the sergeant. Increased weapons' lethality further dispersed the battlefield. Barbed wire and machinegun fire slaughtered any massed assault. They completed the job that the breechloading rifle started in the 1800s. To overcome long range fires, tactics after 1870 were based on fire and movement.

Indirect fire affected fire and movement. Artillery shrapnel and time delay fuzes smashed any concentration of men. Companies could not hide in the folds of the earth for fear that an artillery or aerial observer would adjust fire onto them. Companies could not stay in shelters for fear that their positions would be overrun before they could man their trenches. Since companies could not mass the next step was to disperse further.[66]

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Dispersed and continuous battles, fought over a period of weeks, further decreased control. The moral support of the company was no longer there to help the soldier face fear. The soldier could only turn to himself, his squad, or his leader. The continuous nature of battle and the difficulty of striking back at the foe further increased stress. Battle fatigue or shell shock became common events and drained the will to fight. Battle fatigue also aggravated the problem of constant attrition.[67]

One hundred percent casualties every quarter were not uncommon.[68] With this much turnover it was hard to form cohesive groups to combat fear or trained teams to fight. This affected the leaders' ability to lead and motivate men. Constant attrition reduced control by limiting the effectiveness and reliability of subordinates. Given the trend of less means available for centralized control, armies further decentralized control.

The squad and platoon became the basic elements of combined arms, maneuver, and cohesion. The German squad was the smallest element of maneuver and combined arms in mobile war. It provided the dispersion needed to survive massed defensive fires. The squad had its own direct and indirect fire. The machinegun or grenade thrower could set up a base of fire as the rest of the squad maneuvered to the flanks. These tactics decentralized initiative to the squad leader.[69]

Positional war needed much more firepower to overcome the defense. The allies specialized the sections in the platoon. One section had grenades for indirect fire, one had machineguns for direct fire, and one had rifles for the assault. This organization decentralized initiative to the platoon in positional warfare.[70]

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Both the squad and platoon were dependent on other units for additional support. Each level of command had control of increasingly powerful means of fire support. If the squad or platoon could not handle the problem, they needed assistance from the fire support belonging to the higher headquarters. Squads and platoons exercised initiative, but they were not independent or self-sufficient.[71]

As the squad became the basis of maneuver and combined arms, the discipline to overcome fear reverted to the primary group and the sergeant. Primary group support became a critical factor to overcome fear.[72] Not only did organization decentralize, so did tactics.

The Germans virtually eliminated drills, while infiltration tactics and the elastic defense totally decentralized battle. Unlike the English Army, which saw a use for low level drills, German doctrine found drills stopped commanders from assessing the situation and implementing a good solution. Drills limited leader initiative.[73]

German infiltration tactics avoided strength, attacked weakness, and reinforced success. The commander picked the main effort, but he shifted his main effort to wherever there was success. This success needed support from following reserves to exploit the opportunity created. This linked the commitment of each units' reserves to the success of the forward elements. In effect the squad leader's initiative could commit army reserves. The same linkage was true of the elastic defense.[74]

Immediate local counterattacks broke up attacks. The Germans found that an immediate counterattack by a squad was usually as effective as the deliberate attack by a battalion a day later. If the counterattack by the enfilading fire of a machinegun was not enough,

the reserve squad attacked. If the reserve squad failed, the reserve platoon attacked. This continued until the corp's reserve division attacked. Again junior leader initiative committed higher reserves.[75]

One significant development began to centralize operational control. The radio provided army headquarters a means to move and communicate. As time moved on, the radio embedded itself further down through the army. So, as tactical control decreased, operational control began to increase [76]

As control and coordination decentralized to the sergeants, so did initiative. After World War I, the Germans taught intent and mission tactics to their sergeants.[77] In the 50 years or so from 1870 to 1920, the Germans decentralized the initiative required for mobile war from the general to the sergeant. What is the nature of battle today?

Weapons' lethality increases, while modern communications permeate armies. Battle is dispersed, isolated, stressful, and combined arms at all levels, yet communications improve. This makes battle both easier and harder to control.

Formations continue to disperse as the battlefield becomes more lethal. Precision guided munitions and weapons of mass destruction continue to increase lethalithy. For example, Iraqi jets destroyed Iranian division command posts with pinpoint accuracy in the waning days of the Iran-Iraq war, while antitank missiles have ranges of 5 kilometers or more. The defensive frontage of an Iraqi division shows this increased dispersion. It defends on a 50-90 kilometer front, compared to the 5-20 kilometer front of a division in World War II.[78] This dispersion is linked to further isolation.

Crews and teams are the largest units that leaders can continually

control by sight and sound. Platoon leaders and company commanders certainly try to position themselves to see the battlefield, but they can not see most of it. Any "battle" at the National Training Center at Fort Irwin, California shows the same situation. Even without real bullets and incoming artillery, few leaders see many of their subordinates. They try to see enough to retain control, but that control is tenuous. Just as isolation of dispersed units weakens control, so do continuous operations and unending wars, which increase stress and turbulence.[79]

Wars are fought for years, while many battles are fought continuously, 24 hours a day. The Iran-Iraq War was ten years of trench warfare, like World War I with its combat exhausion. The 1973 Arab-Israeli War had units fight for 72 hours straight until crews literally collapsed from exhaustion. These levels of constant or extended stress make control of isolated crews and teams difficult. Not only does stress make control difficult, so does the need for combined arms at all levels.

Armies as diverse as our own, the Soviets, the British, and the Israelis stress combined arms. This was a major lesson for us in Panama, the Russians in Afghanistan, the Israelis in Lebannon, and the British in the Falklands. Combined arms coordination at all levels complicates control, but radios counter this somewhat.

The permeation of radios and computers makes control somewhat easier. However, radios can be jammed and circuits overloaded, while tired and stressed operators send or copy the wrong messages. All armies practice jamming, while in the Falklands, the British overloaded their satellites. At the National Training Center, an

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environment far short of war, units still fail to pass accurate information.[80] Probably they could do better, but fog and friction are the hazards of war. Commanders make judgements based on intangibles such as how the men appear. The equipment may be ready, but the men may be too unsteady to fight. Communications have yet to bridge this gap. So radio provides an uncertain means to improve control, while other means of control become more difficult.

This divergence in control means has led to two control systems. The Russians stress centralized control and initiative through unit drills, redundant skip echelon communications, and obedience to directive orders. For them tactical initiative is making the plan happen. The West stresses decentralized control and initiative through minimal drills, mission orders, and accomplishing the commander's intent, not the precise task.[81]

Most of the Russian procedures are the same as those used by ancient armies. Skip echelon communications are something new. Each soviet commander has two command nets. One allows him to talk to all subordinates two echelons down. Each company commander can talk to each vehicle commander, while each division commander can talk to every battalion commander. The other command net works one echelon down. Clearly this provides the opportunity for extremely centralized control so long as communications work.[82]

So, today, battle is extremely difficult to control. Modern weapons continually increase dispersion, isolation, stress, and the need for combined arms at all levels weaken battlefield control. As a slight counter to these difficulties, communications technology provides an opportunity to make control easier.

Summary of the history of battle. The history of battle confirms our theory of modern battle. Ancient battle was relatively easy to control, so the army general centrally exercised initiative. Modern weapons' lethality increased battlefield dispersion, decreased the size of controllable units, required integrated combined arms coordination at low levels, and imposed continuous stress/ turbulence. These elements of modern battle made central control difficult. Since control is difficult, all leaders must exercise initiative on a decentralized battlefield. Given the history of these control challenges, let us see how spans of control changed as the nature of battle changed.

Span of Control.

Since the history of the nature of battle confirms the theory, we should expect that spans of control became narrower until recently when the permeation of radios throughout armies made control somewhat easier. The ancients in particular should have had wide spans of control to fight their concentrated and highly centralized battles. Around 1870 spans of control should have started to decrease as rifle lethality began decentralizing the battlefield. After World War II spans of control should have started to slightly widen, as improved communications improved control. Let us start with the ancients.

The armies of the Great Captains will show the spans of control for various echelons on the ancient, concentrated, and centralized battlefield. The Great Captains chosen are Alexander, Caeser, and Ghengiz Khan. Hannibal's army was not used due to the lack of detailed information on it. The evolution of typical western armies from 1800 to 1990 will show the evolution of span of control as battle

decentralized. Let us start with the army organization of the great captains of antiquity.

Maneuver Units In Ancient Centralized Armies

	Average	Squad	Platoon	Company	Battalion	Regiment	Brigade	Division
Macedonians	5.3	16	4	2	2	4	4	5
Romans	7	10	10	2	3	NA	NA	10
Mongols	10	10	NA	10	NA	10	NA	10

On the average the ancients had extremely wide spans of control. These spans varied from two to sixteen, but ten is the most common number of subordinates. Even though the average span was quite wide, some echelons were extremely narrow. The two platoons in the Roman company along with the two units in the Macedonian company and battalion are of note. The wide spans of control clearly indicate that highly centralized battle generally has wide spans of control. Let us look at changes in span of control within the typical western army as the battlefield decentralized.[83]

Maneuver Units By Echelon 1860 and 1914

	Squad	Platoon	Company	Battalion	Regiment	Brigade	Division	Corps
1860	14	2	4	4	3	3-4	3-4	3-4
1914	12	4	3-4	4	3	2	2	2

Most armies narrowed the spans of control at corps, division, and brigade during this period. This coincides with the decentralization of battle after the Wars of German Unification. Two armies made extremely drastic changes. The U. S. and British Armies changed the size of the typical regiment from 8-12 companies per regiment to

three battalions each of four companies. World War I brought on further changes.[84]

Typical Subordinate Units 1914-1945[85]

	Squad	Platoon	Company	Battalion	Regiment	Brigade	Division
1914	12	4	3	4	3	2	2
1945	3	3	3	3	3	NA	3

World War I triangularized most units, that is, three maneuver subordinates became common. Two subordinates at division and brigade were too expensive and limited initiative. The large 10-12 man squads also became hard to control at the close of World War II.

The two unit divisions/ brigades had the options of line or column. Line meant there was no reserve, which eliminated flexibility and initiative. Column meant that half the unit was in reserve, which put too much manpower in reserve. These square divisions with two brigades, each of two regiments, also tended to have a superfluous brigade headquarters. Divisions formed a reserve by taking one regiment out of a brigade. This made one brigade superfluous as it supervised only one regiment. The First Cavalry Division at Leyte in World War II is a good example of this.[86]

Many armies preferred to have four subordinate maneuver units per echelon after World War I. They could not man these large divisions and keep the same number of division headquarters. Four divisions each with three regiments has twelve regiments, just like three divisions of four regiments each. To standardize echelons and simplify the transition to command higher echelons each infantry unit had three subordinate maneuver units. During the 1930s both the German and

American Armies tested the triangular units and found to their surprise that three subordinates were superior.[87]

The last echelon to officially narrow its span of control was the squad. In the 1930s the Germans and the Red Chinese had three fire teams per squad. The U. S. Marines copied the Chinese organization and used it from World War II on. The U. S. Army fought the Chinese in Korea, 1950-1952, and copied the concept. This officially sanctioned the team organization that the rifle squad used during World War II.[88]

All units did not triangularize. Some light infantry and many armored units had two as their span of control. Some infantry was forced for political reasons to have two units per division/ regiment to maximize the number of divisions. Finally, the Soviets had four maneuver units in their mechanized formations by the end of the war.[89] Given the general trend to triangularize by World War II, what have armies done now?

Subordinate Maneuver Units 1945-1990

	Squad	Platoon	Company	Battalion	Regiment /Brigade	Division
1945	3	3	3	3	3	3
1990	2-10	3-4	3-5	3-5	3-5	3-7

During the last generation, spans of control have started to creep up even though the battlefield continues to disperse. The permeation of radios into every vehicle and squad may explain some of this trend. Some armies have two to three fire teams, while others have seven to ten man squads. Most armies have three squad platoons , but some have four. Most armies have three tank platoons, but many have four

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tank platoons. This pattern holds true from company to brigade. At division level, several armies eliminated the brigade and put five to seven maneuver battalions per division. The wider spans implement the American Army's failed Pentomic organization from the 1950s.[90]

It is unclear whether these variations in spans of control are due to slow adoption of the capabilities provided by the information age. Perhaps as time separates armies from the last major war, organizations are removed from the realities of the battlefield.

To summarize the history of span of control the ancients had wide spans of control to fight their concentrated and centralized battles. Around 1870 spans of control decreased as the lethality of the magazine rifle began decentralizing control and initiative. After World War II spans of control widened slightly, as improved communications improved control.

The Trends In Civilian Spans Of Control

Some writers claim that wide spans of control are efficient, speed communications, which allow organizations to react to the changing environment, and develop subordinate initiative by forcing decentralization. The realities are a bit more complex. Wider spans of control tend to be more efficient, but not always. Eliminating headquarters only saves resources, if these headquarters really are superfluous. Wide spans of control and computers can give top management instant access to the marketplace, if the computers have the right data, but centralized control of multinational corporations is not always appropriate. Additionally, testing shows that narrow spans of control actually process information faster and analyze it better. Smaller groups coordinate and decide faster than larger groups. Also,

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wide spans of control support decentralization, if the organization's leaders delegate authority and that corporation is not so integrated that the coordination becomes impossible.[91]

This last point addresses the issue of wide spans developing leaders and subordinate initiative. Wider spans supposedly develop leaders by forcing managers to decentralize. More subordinates are supposed to overload managers, so that they must decentralize. SEARS attempted to force managers, who preferred centralized control, to decentralize by transferring them to stores with wider spans of control. This failed completely. The managers, who preferred centralized control, continued to operate with central control. They either narrowed their spans to increase control or worked harder. In fact managers were so unwilling to change, that some literally worked themselves to death instead of delegating authority.[92]

The information age has made it easier to expand spans of control. Rapid, clear, and accurate information is available through modern technology, but it is harder to bring to the field in combat conditions. For example the Army's computerized fire control system, TACFIRE, will not work on radios that are perfectly capable of handling voice messages. The radios need special tuning to handle digital traffic.[93] War is not fought by units connected by fiber optic cables. Technology that works in a civilian setting may not work in war. Assuming that information technology automatically allows for wide spans of control assumes that war and peace are similar.

Summary of History

Narrow spans of control support initiative on a decentralized

battlefield. Modern weapons' lethality and the need for combined arms coordination makes control difficult. Narrow spans of control allow leaders to maintain some control, while making units so small that subordinate leaders can coordinate changes to the plan, if required. Three to four subordinates seem to be the normal limit to maintain control and support leader initiative. Which span of control then best supports initiative, while maintaining adequate control under combat conditions?

PART IV: ANALYSIS

The comparison between the theory and history of battle and span of control weeded out those spans of control that were too difficult to control in decentralized battle. Usually, five or more maneuver units were too difficult to control. Analysis now revolves around the criteria of initiative. As World War I showed, two units limit subordinate initiative. Before we compare spans of control of three and four subordinates, we will describe the two types of warfare: mobile or open warfare and static or positional warfare.

These are the two extremes under which leaders must maintain control and exercise initiative on a decentralized battlefield. Mobile battle occurs when units can move freely and is characterized by open flanks. The American Indian Wars, Rommel in the Western Desert, and Patton exploiting out of Normandy are examples of mobile open warfare where battles of annihilation predominated. In mobile battle the situation is unclear and the opportunity is the assailable flank. Alternately, positional or static warfare is characterized by high

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troop densities where leaders must penetrate deeply echeloned defenses. Korea today, the Hedgerows in Normany, or the Western Front in World War I are examples of situations where static or positional battles of attrition predominated. In positional warfare the situation is clearer and the opportunity is to mass overwhelming combat power on an enemy weakness and then penetrate deeply. Given these extremes of war let us analyze units with three and four subordinates.[94]

Three subordinate maneuver units support initiative in mobile or open battle. Each formation exploits opportunity. Armies which stress meeting engagement, mobile battles of annihilations, and leader initiative have three subordinates. Let us look at the formations first.

Column	Two Back	Two Up	Line
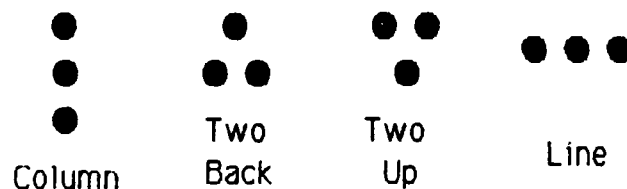
The column provides maximum control during rapid movement along with a large, two unit reserve, which exploits one or both open flanks. The wedge (or one up and two back) provides a large reserve when the situation is vague. The vee (or two up and one back) provides a small reserve to exploit opportunity when the situation is clear. Finally, the line provides maximum combat power forward, exploits overall enemy weakness, and pursues a defeated enemy.

The column just follows the leader so control is simple. Since the three unit column is not too long, both trailing elements quickly deploy on contact. They can both go left or right to turn an open flank or each can turn separate flanks.[95] Let us look at an example of columns in

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mobile war.

Japanese columns during World War II deployed trailing elements left and right to find an open flank and turn the defender's position. This helped the outnumbered Japanese to overrun Malaya and Burma. The Japanese Army stressed mobile warfare, particularly the meeting engagement along with leader initiative to win battles of annihilation.[96] The wedge works when speed is less critical and the situation is vague.

The wedge provides a large reserve closely following the lead. Since the units are not ducks in a row, control is a bit more difficult and movement is slower. The reserves are closer, so the commander can commit the reserves faster to exploit an exposed flank. The classic example of this is the Red Chinese army in Korea.[97]

From squad level on up the Red Chinese normally used the wedge. On contact each trailing unit attempted to envelop a flank. This worked quite well in China and the opening part of the Korean War, because there was no continuous front line. The Reds exploited the flanks and annihilated the enemy. Since each echelon from squad on up used the formation, each leader was expected to demonstrate initiative. This wedge works in vague situations.[98] What about when the situation is clearer?

The vee addresses this. It has a small reserve with the bulk of the combat power forward. The commander masses his combat power based on intelligence with the two forward units. The trail unit or reserve exploits opportunity. This is the classic Japanese tactic in World War II. Two up and one back is simple to control and forces the commander to make a decision on his reserve. Decision is the essence

of German initiative.[99] What about the line?

Clearly the line is harder to control and has no reserve. It works if the situation is quite clear. The decision to go on line is the final act of exploiting opportunity. The vee, wedge, and column become a line on commitment.

The recurrent theme with the armies using these formations is that they strove to achieve rapid victory through mobile battles of annihilation. This is the tradition of the German Army at least up to 1945.[100] Note that German tactical formations had no more than three maneuver units.[101] Remember that attrition and firepower smashed these armies designed for mobile war. If three subordinates favor initiative in mobile war, what of four units?

Four units have more firepower and sustain attrition. Positional battles of attrition need mass and firepower to penetrate deeply echeloned defenses. Initiative rests with the last uncommited reserve or enough mass to penetrate deeply and turn the positional battle into an open battle of movement. Positional battles of firepower and attrition are more centralized[102] and, as we have shown earlier, wider spans of control are signs of centralized command. Let us first look at two classic examples of centralized armies based on firepower, the Russians and the French.

The Russian Army currently has four or more subordinates at every level above the crew, which indicates more centralization than three subordinates. The motorized rifle platoon has three squads and a tank in combat. The company has three rifle platoons and a tank platoon. This continues up through battalion and division.[103] Other signs of centralization are the extensive use of drills, the emphasis on near

blind obedience, and the great deal of discipline enforced through the labor camps.[104] The Soviet belief in firepower also supports this need for more subordinates, since more units provide more firepower.

The Soviets believe in firepower. The artillery is the favored branch in the Soviet Army. Stalin went as far as to say that "artillery is the god of war".[105] The Soviet tactics manual recommends that fire support must destroy 50% of the defender before the attack begins.[106] Compare this to the normal U.S. neutralization (10% destruction).[107]

The French Army also has a tendency to wide spans of control, centralization, and firepower. The French Army has four or more subordinates in most tactical units. Many platoons have four squads. Most companies have four platoons and some have five. Most battalions and have four companies. Divisions have four or more maneuver battalions.[108]

The French centralization in World War I and World War II is well recorded and reaffirmed by the French exchange officer in the 1990 CGSC class. He could not understand our concept of mission analysis, where commanders approve their own mission statements. He was convinced that the mission should be directed by the higher commander, just like the Soviets.[109]

Ever since Napoleon the French have believed in artillery. For example during the Second World War the French had two artillery regiments versus the one German. Foch said "artillery conquers and infantry occupies,"[110] an echo of Soviet fires. The French and Russian armies are based on firepower, centralized control and four subordinates. Since positional wars of firepower and attrition are more centralized, do units designed for firepower and attrition usually

have four subordinates?

The U. S. Army in Europe wanted to have four regiments per division after the Second World War to allow units to rotate out of the line and reconstitute. The U.S. Pentomic divisions with four to seven maneuver elements per unit were designed to fight on a nuclear battlefield. The French Army has four subordinates to allow units to rotate an element out of the line. U.S. infantry companies in Vietnam had four rifle platoons to fight a sustained guerrilla war. The U.S. tank platoon was designed with a fourth tank to account for maintenance breakdowns. This is just like the huge pre World War I companies which had about 100 extra men to withstand attrition. Four subordinates provide units the ability to withstand attrition.[111] What about firepower?

U.S. armor/ mechanized battalions and motorized antiarmor companies were both designed for firepower. Testing showed that the four platoon antiarmor company was hard to control, but it had the greatest firepower. The Army went with the four platoons.[112] The same reasoning went into the heavy battalion. Computer simulations showed that a larger battalion had a better exchange ratio in a battle of attrition. The Army went with the big four company battalion over the smaller three company battalion.[113]

Mass and firepower help establish initiative in positional battles of attrition. Exploiting a penetration is the opportunity in positional battle, since there are no flanks to turn, Additional subordinates provide more mass and firepower to create or block a penetration. As we noted, armies and units designed for firepower and attrition have four subordinates, but tend to be more centralized.

Units with four subordinates suffer another disadvantage in addition to centralization. These units tend to attack two up and two back on two separate axes. The U.S. armor/ mechanized battalions were designed with this in mind.[114] This cordon attack tends to defeat in detail as neither axis has overwhelming force to attack well, while the two up and two back defense fails against a foe who masses all on one axis.

So, three units provide maximum control to rapidly commit a reserve around a flank in a mobile battle of annihilation, while four units provide the additional firepower and sustainability required to establish and maintain initiative in a positional battle of attrition. Is our Army organized for initiative in mobile or positional warfare today?

Current U. S. Tactical Spans of Control[115]

	Squad	Platoon	Company	Battalion	Brigade	Division
Light Infantry	2	3	3	3	3	3
Mech Infantry	2	3	3	4	3	3
Armor	3	4	3	4	3	3

With a few exceptions the Army is designed to foster initiative in mobile battles. Most units have three subordinates, which supports our doctrine of initiative in mobile battle.[116] The infantry squad, the tank platoon, and the armor/ mechanized infantry battalions are exceptions to this trend. Are these exceptions justified?

The infantry squad needs three teams for the squad leader to exercise initiative in mobile war, because the current two teams restrict his initiative. The tank platoon compromises between three tanks to fight and four tanks to maintain three operational, which is

reasonable. The mechanized/ armor battalions are designed for maximum firepower, initiative in positional warfare, while no other tactical echelon is, why?

One answer could be that the Army planned to rotate companies out of the line for sustainment, but this was not the case. The Army designed the brigade to have it rotate battalions out of the line.[115] The Army was planning to rotate brigades in and out of the Persian Gulf. If this, in fact, is the level for rotations, should not divisions have four brigades? Given this, all battalions should probably only have three maneuver companies.

The Army, generally, is designed for leader initiative in mobile war. It should consider three fire teams per squad and three companies per battalion to provide leaders the flexibility and control to exploit initiative in mobile war.

PART V: CONCLUSION/IMPLICATIONS

We started by asking the question: do the Army's current tactical spans of control support the initiative required to fight and win on the empty, decentralized battlefield? Theory said that weapons' lethality makes control difficult, decentralizes initiative, and requires combined arms at all levels. Under these conditions narrow spans of control, three to four units, are usually appropriate. History showed that in the late 1800s the magazine rifle and later weapons advances changed battle from being centralized with easy control to increasingly dispersed and decentralized.

With decentralized initiative, spans of control became narrower.

Comparison of units with three and four maneuver subordinates,
showed that three subordinates supported initiative in mobile battle,
by providing maximum control to exploit opportunity, turning the flank
in open warfare. Four subordinates supported initiative in more
positional battles of attrition, because the additional combat power
established initiative and penetrated deeply echeloned defenses. This
leads back to the original question, do current Army spans of control
support leader initiative?

The Army with three maneuver units at most echelons is designed
to fight the mobile battles our doctrine demands. The rifle squad,
however, probably needs another fire team for a total of three. The
Army should also consider three versus four maneuver companies in
armor/ mechanized battalions to make them more mobile. These
changes will support leader initiative by providing leaders the control
and flexibility to rapidly turn flanks, the opportunity in mobile battles.

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